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COMPARATIVE STUDY OF RESTRICTED ACTIVITIES DAYS IN HYPERTENSION INDUCED STROKE VERSUS NON HYPERTENSION INDUCED STROKE: THE ROLE OF DEMOGRAPHIC FACTORS, SOCIOECONOMIC FACTORS AND COMPLIANCE WITH TREATMENT REGIMEN

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Abstract

This study determined the relationship between restricted activities days in hypertension induced stroke patient cases versus non hypertension induced stroke patients cases of hypertensive elderly people admitted in selected healthcare facilities in Aba south L.G.A, Abia state. A cross sectional analytical study design was used and multistage sampling technique was adopted for the study. A total of 120 participants were recruited for the study and the collected data was analyzed using descriptive statistical analysis and the results were presented in frequency tables and charts. The results of the study showed that 89.2% were diagnosed of hypertension induced stroke and the patients with hypertension induced stroke were higher in male with 70(58.3%) than female with 50(41.7%).Only 15(12.5%) participants reported lack of money while 81(67.5%) reported their physically demanding occupation since diagnosis of hypertension as factors which affect them to visit clinics for their condition. Also, moderate income and inadequate income earners have 1.01 times higher odds ratio (95%CI=0.000 to 3.22E+09), and adequate income earners have 1.00 times lower odds ratio (95%CI=0.000 to 1.481E+27) to develop stroke due to hypertension. The non compliance with dosage regimen among respondents was found to be lower (41.7%) than the compliance rate of respondents (58.3%), with respondents that takes prescribed drugs after diagnosis of hypertension having 1.000times lower odds ratio (95%CI=0.000to 3.21E+120) to develop stroke due to hypertension. Therefore, there is need to imbibe a strong culture of compliance with dosage regimen among hypertensive persons as a way facilitating the amelioration and management of the disease condition.

Introduction

Hypertension, also known as high blood pressure (HBP) is one the major public health problem that has been of health concern and is a leading cause of morbidity and mortality globally (Lee *et al.*, 2002).Hypertension is defined as persistent elevation of systolic BP of 140 mmHg or greater and/or diastolic BP of 90 mmHg or greater. However, hypertension induced stroke refers to consistent high blood pressure that is greater than 140/90 mmHg, lasting for more than 24 hours leading to damaging and narrowing of the blood vessels in the brain and raised risk of the blood vessels becoming blocked or busted. Hypertension is one of the most common worldwide diseases afflicting human and is a major risk factor for stroke, Myocardial infarction vascular disease and chronic kidney disease. It is a Long

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term medical condition in which the blood pressure in the arteries is persistently elevated (Naish, 2014). High blood pressure affects between16 and 37% of the population globally and long term blood pressure is a major risk factor for stroke, heart failure, coronary artery disease, vision loss, peripheral vascular disease and chronic kidney disease (Lackland and Weber, 2015). Furthermore, hypertension is the most common medical problem encountered in pregnancy, among the aged and is a leading cause of perinatal and maternal morbidity and mortality (Nelson-Piercy, 2007; National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy – NHBPEP, 2000). Hypertension is a main cause of death in adult populations and cardiovascular diseases such as ischemic heart disease and stroke (Adika *et al*., 2011).

Despite extensive research over the past several decades, the etiology of most cases of adult hypertension is still unknown and control of blood pressure is suboptimal in the general population. Due to the associated morbidity and mortality and cost to society, preventing and treating hypertension is an important public health challenge. Fortunately, recent advances and trials in hypertension research are leading to an increased understanding of the pathophysiology of hypertension and the promise for novel pharmacologic and interventional treatments for this widespread disease. The seventh report of the joint national committee on prevention, detection, evaluation and treatment of high blood pressure (JNC7), which was released in 2003 reported that approximately 30% of adults were unaware of their hypertension, up to 40%of people with hypertension were not receiving treatment, and of those treated up to 67% did not have their blood pressure controlled to less than 140/90mmHg (Chobanian *et al*., 2003).

Hypertension is the most common medical problem globally and a third leading cause of death encountered in Nigeria, among the age and is a leading cause of high rate of hypertension induced stroke; restricted activity days, perinatal; maternal morbidity and mortality. Hence, the wide spread failure in many countries, especially Nigeria to implement population base Public health approach for screening and control of hypertension induced stroke among the elderly which always results to increase restricted activity day has heighted the importance of successful and efficient hypertension treatment strategies to reduce the complications and mortality. Therefore, healthcare professionals must not only identify and treat patients with hypertension induced stroke but also promote preventive strategies to decrease the prevalence of hypertension in the general population. Hence, this study assessed the role of demographic factors, socioeconomic factors and compliance with treatment regimen in restricted activities days in hypertension induced stroke versus non hypertension induced stroke among hypertensive elderly people admitted in selected healthcare facilities in Aba South L.G.A., Abia State, Nigeria.

Methodology

A cross sectional study design was used and the study area was Aba South Local Government Area in Abia State located in the south-east part of Nigeria. It is an industrial hub of the state, situated in the region known as the South-east geo-political zone $5^{o}06'N$ and $7^{o}21'E$ with a land area of $49km^2$ (19sqmi) and population of 423,852 according to the 2006 census of the National Population Commission. The target populations were all hypertensive elderly patients with stroke who had reported at the selected healthcare facilities and were resident in the study area for at least one (1) year prior to the study and were attending Healthcare services in Aba South, L.G.A, Abia State, Nigeria. Multistage sampling technique was employed in selecting the sample size. The study area was first classified into clusters and Aba South divided into four clusters. Then simple random sampling was used to select the healthcare facilities from the cluster. In each cluster, two (2) hospitals were selected (one from the rural and another from the urban area) making a total of 8 healthcare facilities and in each healthcare facilities, 15 patients were selected making a total of 120 patients. They were assessed and given questionnaires for their responses in the selected healthcare facilities systematically based on their medical record roll calls. The instruments for data collection were the sphygmomanometer used in measuring blood pressure (BP) of the participant and a self-developed questionnaire divided into sections relevant to the objectives of the study. The questionnaire was pre-tested and pilot-tested. It was distributed to a small group of respondents (48 patients) similar to those in the target population at Aba South, Abia State. The results of the pilot study were used to make appropriate corrections

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/adjustments for content and clarity. The reliability of the instrument was also tested using Chrombach Alpha coefficient of Reliability test and a coefficient of 0.704 approximately was gotten and regarded reliable. Informed consent of the participants was sought and the purpose of the study was explained to the participants. Information provided by the participants was treated with confidentiality and participants' anonymity was ensured. The data obtained was analyzed using Statistical Package for Social Science (SPSS) version 20.0. Descriptive statistics was used to analyze the data and the results were presented in tables and charts using Microsoft Excel 2010.Odd ratio was used to find out the level of association between each risk factors and development of restricted activity days in hypertension induced stroke versus non hypertension induced stroke at 95% confidence interval (C.I).

The odd ratio is given by OR = $\frac{a/b}{c/d} = \frac{axd}{bxc}$

Ethical considerations

The ethical approval was sorted from the Ethical Committee of the clinics from which data were collected. Also approval was received from the Institutional Research Review Committee of the Department of Public Health, Federal University of Technology, Owerri. The study objectives and Methodologies were explained to the participants who agreed to participate and gave their verbal consent. Written consent was also gotten from the Medical director's/Heads of the various clinics used in the research.

Results

The socio-demographic information of the participants was depicted in the table1; majority 70 (58.3%) of the respondents were male while 50 (41.7%) were female. Out of 120 people assessed; 92 (76.7%) were married followed by 19(15.8%) got divorced/separated while only 9(7.5%) were single. From the result, majority 41 (34.2%) has their main occupation as civil servant followed by traders with 36 (30%) while the least 13(10.8%) were artisan (See table 1).

Table 1: Demographic Information of Respondents

Variables	Frequency	Percentage
Sex of respondents		
Male	70	58.3
Female	50	41.7
Total	120	100.0
Marital status of respondents		
Single	9	7.5
Married	92	76.7
Divorced/separated	19	15.8
Total	120	100.5
Occupation of respondents		
Civil servant	41	34.2
Trader	36	30.0
Artisan	13	10.8
Retire	30	25.0
Total	120	100.0

The result showed that 89.2% of the participants were diagnosed of hypertension induced stroke while 10.8% had no hypertension induced stroke (figure 1).

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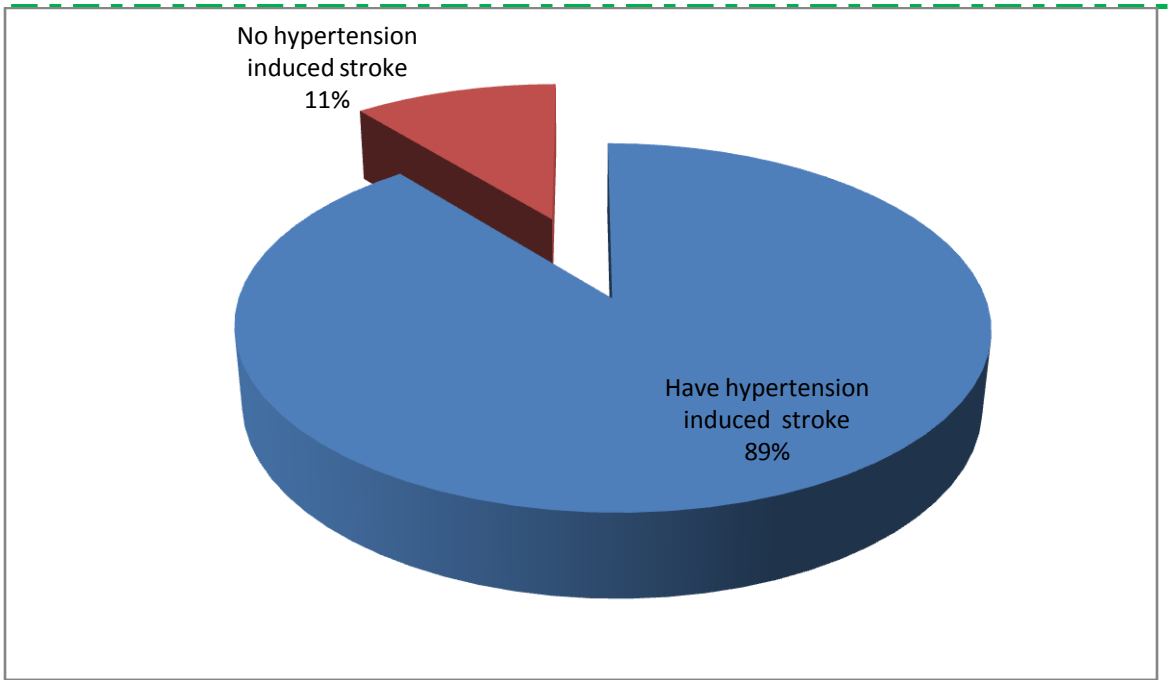

Figure 1: Diagnosed of hypertension.

The table 2 presented the socio-economic status of the respondents; 107(89.2%) visit clinic regularly after diagnosed with hypertension while 13(10.8%) do not visit. Lack money since diagnosis of hypertension; 15(12.5%) reported while 105(87.5%) said money was not a reason for not visiting clinic. On the same note, 97(80.8%) said their occupation is physically demanding and 81(67.5%) said they works more than 8 hours per day while only 24(20%) reported they works below 8 hours per day which indirectly affects the clinic visitation due to hypertension.

Table 2: Socio-economic Status of the Respondents

Statements	Yes	No	Total
Visit clinic regularly after diagnosed with hypertension	107(89.2%)	13(10.8%)	120
Lack of money since diagnosis of hypertension	15(12.5%)	105(87.5%)	120
Occupation is physically demanding	97 (80.8%)	23 (19.2%)	120
Works more than 8 hours per day	81 (67.5%)	39(32.5)	120
Works below 8 hours per day	24(20%)	96(80%)	120

Table 3 showed the relationship between hypertension induced stroke and income status of respondents, as the 95%CI do not overlap, it can be stated that moderate income, inadequate income have 1.01 times higher odds ratio (95%CI=0.000 to 3.22E+09), and adequate income have 1.00 times lower odds (95%CI=0.000to 1.481E+27) to develop stroke due to hypertension.

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Table 3: Relationship between Hypertension induced Stroke and Socio-economic status of people using Odd Ratio

Observed		Analysis					
		Diagnosed of hypertension			Odd Ratio	95% Confidence interval	
		Yes	No	Total		Lower bound	Upper Bound
Income status influences hypertension induced stroke	Adequate income	15	0	15			
	Inadequate income	55	0	55	1.00	0.000	1.481E+27
	Moderate income	37	13	50	1.01	0.000	3.22E+09
	Total	107	13	120			

Table 4 showed the relationship between hypertension induced stroke and nature of occupation of respondents, as the 95%CI do not overlap, it can be stated that don't know about it have 1.00 times lower odds ratio (95%CI=0.000 to 1.379E+26), and yes (nature of occupation affects hypertension induced stroke) have 1.02 times higher odds (95%CI=0.000to 1.610E+18) to develop stroke due to hypertension.

Table 4: Relationship between Hypertension induced Stroke and Nature of occupation

Observed		Analysis					
		Diagnosed of hypertension			Odd Ratio	95% Confidence interval	
		Yes	No	Total		Lower bound	Upper Bound
Natural Occupation	Yes	97	0	97			
	No	10	8	18	1.02	0.000	1.610E+18
	Don't know	0	5	5	1.00	0.000	1.379E+26
	Total	107	13	120			

The non compliance with dosage regimen among respondents was depicted in table 5 where 70(58.3%) reported they do take their prescribed drug since diagnosed with hypertension while 50(41.7%) do not. Only 25(20.8%) takes herbal medicine always while 95(79.2%) was against it. Also, 113(94.2%) takes food supplements and 40(33.3%) takes herbal supplement while 80(66.7%) do not engaged in taking herbal supplement. From the results, 105(87.5%) eats food that contain six classes of food while only 15(12.5%) do not.

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Table 5: Non Compliance with Dosage Regimen among Respondents

Statements	Yes	No	Total
Have been taking prescribed drug since diagnosed with hypertension	70(58.3%)	50(41.7%)	120
Takes herbal medicine always	25(20.8%)	95(79.2%)	120
Takes food supplements	113(94.2%)	7(5.8%)	120
Takes herbal supplement	40(33.3%)	80(66.7%)	120
Eating food that contain six classes of food	105(87.5)	15(12.5%)	120

Table 6 showed the relationship between hypertension induced stroke and compliance with dosage regimen, as the 95%CI do not overlap, it can be stated that takes food supplements, takes herbal medicine have 1.00 times higher odds ratio (95%CI=0.000 to 3.32E+230), and takes prescribed drugs after diagnosis have 1.000times lower odds (95%CI=0.000to 3.21E+120) to develop stroke due to hypertension.

Table 6: Relationship between Hypertension induced Stroke and Compliance with dosage regimen

Observed		Analysis					
		Diagnosed of hypertension			Odd Ratio	95% Confidence interval	
		Yes	No	Total		Lower bound	Upper Bound
Compliance with dosage regimen	Takes prescribed drug after diagnosis	70	0	70			
	Take herbal medicine	25	0	25	1.00	0.000	3.21E+120
	Takes food supplements	12	13	25	1.00	0.000	3.32E+230
	Total	107	13	120			

Discussion

Hypertension is the strongest risk factor after age and people with hypertension are about 3 or 4 times more likely to have a stroke (Chobanian *et al*., 2003).

In this study, the prevalence of hypertension was found to be 89.2%. This increase of hypertension could be as a result of poor knowledge of the people on the risk factors. This is in contrast with the previous report of Selvarajah *et al*. that hypertension remains the number one risk factor with a prevalence rate of 42.6% in adults above 30 years of age (Selvarajah *et al*., 2013). This prevalence rate of hypertension was far below the result of this study that showed 89.2%.

In the present study, occupation of the patients in relation to restricted activity days in hypertension induced stroke cases occurrence proved that, civil servants, traders and retiree were more affected when compared to other occupations of the respondents and that could be as a result of emotional attachment from poor payment of salary, costumers of either to buy from them or not.

Furthermore, the compliance rate with dosage regimen among respondents was found to be 70(58.3%) while non compliance rate was 50(41.7%). Compliance with dosage regimen of hypertension management as seen in this study

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was associated significantly with hypertension induced stroke. The reduction in systolic and diastolic blood pressure of about 3 mmHg was as a result of good compliance with dosage regimen (Ebrahim and Smith, 1998).

Conclusions

This study revealed a high prevalence rate of hypertension of 89.2% with civil servants, traders and retiree being more affected when compared to other occupations of the respondents. Also, the compliance rate with dosage regimen among respondents was found to be 58.3% while non compliance rate was 41.7%. However, Compliance with dosage regimen of hypertension management was associated significantly with hypertension induced stroke, resulting in reduction in systolic and diastolic blood pressure of about 3 mmHg.

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